

MILLIMETER/SUBMILLIMETER SPECTROSCOPY TO MEASURE THE BRANCHING RATIOS FOR METHANOL PHOTOLYSIS

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Methanol is one of the most abundant and important molecules in the interstellar medium, playing a key role in driving more complex organic chemistry both on grain surfaces and through gas-phase ion-molecule reactions. Methanol photolysis produces many radicals such as hydroxyl, methoxy, hydroxymethyl, and methyl that may serve as the building blocks for more complex organic chemistry in star-forming regions. The branching ratios for methanol photolysis may govern the relative abundances of many of the more complex species already detected in these environments. However, no direct, comprehensive, quantitative measurement of methanol photolysis branching ratios is available. Using a 193 nm excimer laser, the gas phase photolysis of methanol was studied in the (sub)millimeter range, where the rotational spectroscopic signatures of the photolysis products were probed. Here we present preliminary results from this experiment.